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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER
TYLER, NATHAN K

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-12</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-4 and 7-12</u> is/are rejected.

7) ☒ Claim(s) <u>5 and 6</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>23 December 2003</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All b) ☐ Some * c) ☐ None of:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>23122003</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

2.   Claims 11 and 12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 11 defines a "medium" embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive

material is recorded on some computer-readable medium it becomes structurally and functionally

interrelated to the medium and will be statutory in most cases since use of technology permits the

function of the descriptive material to be realized" – Guidelines Annex IV). The examiner

suggests amending the claim to embody the program on "computer-readable medium" or

equivalent in order to make the claim statutory.   Any amendment to the claim should be

commensurate with its corresponding disclosure. An equivalent rejection applies to claim 12.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

4.   Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing

to particularly point out and distinctly claim the subject matter which applicant regards as the

invention. Claim 9 lacks a transition phrase, therefore it is impossible to tell where the preamble

of the claim ends, and the body of the claim begins.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claims 1, 2, 3, 4, 7, 8, 9, 11 and 12 are rejected under 35 U.S.C. 103(a) as being

unpatentable over the combination of Yoda et al. (US 5502580 A) and Konishi (US 6046820 A).

Regarding **claim 1**, Yoda discloses A print control method comprising a step for referring

to a previously stored profile (Fig. 9, S2 "set device profile") and generating a color conversion

table for transforming a specific color in said input image data into output image data (Fig. 9, S6

"generate image conversion table"); and a step for carrying out color conversion referring to the

color conversion table (Fig. 9, S8 "convert color image data"), and performing print operation

(Fig. 9, S9 "output color image").

Yoda does not disclose that the colors are rendered only by color components of a

specific color.

Konishi discloses an image reproduction method where a look up table is used to convert

values only rendered by color components of a specific color ("At this time the data processor 12

refers to a grayscale correction table 16... to convert a logical grayscale value specified in the

document file to an appropriate grayscale value" at column 3, line 22).

It would have been obvious at the time the invention was made to one of ordinary skill in

the art to use the grayscale correction table disclosed by Konishi in the image reproduction

method disclosed by Yoda, so that grayscale image data could be color converted as well as

color image data.

Regarding **claim 2**, the combination of Yoda and Konishi as applied to claim 1 discloses

a print control method comprising a step for storing beforehand on a predetermined storage

medium ("The device profile generator 18… stores the device profile group" at Yoda column 6,

line 34) a first profile wherein the combinations of color component values in the first color

space are in correspondence with the combinations of color component values in a second color

space composed of non-equipment-dependent color components (see Yoda Fig. 2, "input device

profile group") and a second profile wherein the combinations of color component values in a

third color space composed of the ink color components of said printing device are in

correspondence with the combinations of color component values in said second color space (see

Yoda Fig. 2, "output device profile group"); a step for bringing a color rendered only by a

specific color component value in said first color space and a color rendered only by a specific

color component value in said third color space into correspondence with each other in the

second color space, referring to said first profile and second profile, and generating a color

conversion table which defines the correspondence between the color component values in the

first color space which render the color and the color component values in the third color space

which render the color (see Yoda Fig. 9, S3 "generate common color space conversion table;" S5

"generate specific color space conversion table;" S6 "generate image conversion table"); a step

for converting colors rendered only by the specific color component value in said acquired image

data into colors rendered only by the specific color component value in the third color space, referring to the color conversion table (see grounds for rejection for claim 1 regarding use of conversion tables for grayscale image data); and a step for performing print operation based on the image data which underwent the color conversion (Yoda Fig. 9, S8 "output image data").

Regarding **claim 3**, the combination of Yoda and Konishi as applied to claim 1 discloses that at least one color of the color components in said first color space and at least one color of the color components in the third color space are specific colors in the same family, and the colors rendered only by said specific color component value are the specific colors (see grounds for rejection for claim 1. If grayscale input and output image data is used, the specific colors will be in the same family, as grayscale image are rendered using only the color black).

Regarding **claim 4**, the combination of Yoda and Konishi as applied to claim 1 discloses that the specific colors are black (see grounds for rejection for claim 3).

Regarding **claim 7**, the combination of Yoda and Konishi as applied to claim 1 discloses that a plurality of profiles can be stored, and specified profiles are referred to as said first profile and second profile when said image data is printed (see Yoda Fig. 2, plurality of profiles shown).

Regarding **claim 8**, the combination of Yoda and Konishi as applied to claim 1 does not disclose a plurality of color components corresponding to a plurality of ink colors different in density, the method comprising a step for generating a color conversion table wherein a color rendered only by a specific color component value in the third color space is rendered by a plurality of color component values corresponding to a plurality of said ink colors different in density.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to use a plurality of colors to render the specific color, in case the printer ran out of black ink, a combination of C, M, and Y could be used to achieve a black image [official notice].

Regarding **claim 9**, the combination of Yoda and Konishi as applied to claim 1 discloses a print controller which acquires input image data (Fig. 1, numeral 10 "image input unit") wherein colors are rendered by the combinations of a plurality of color component values (Fig. 9, S7 "read color image data") and transforms the input image data into output image data wherein colors are rendered by the combinations of gradation values corresponding to ink colors used in a printing device when print operation is performed (Fig. 9, S8 "convert color image data", S9 "output color image"), wherein referring to a previously stored profile (Fig. 9, S2 "set device profile"), a color conversion table for transforming a specific color in said input image data into output image data wherein colors are rendered only by color components of the specific color is generated (see grounds for rejection for claim 1); and with respect to the colors rendered only by the color components of the specific color in said input image data, color conversion is carried out, referring to the color conversion table, when print operation is performed (see grounds for rejection for claim 1).

Regarding **claim 10**, the combination of Yoda and Konishi as applied to claim 1 discloses a print controller comprising: an image data acquiring unit which acquires image data wherein colors at the pixels constituting an image are rendered by color component values in a first color space (Yoda Fig. 1, "image input unit"); a first profile storing unit which stores first profiles wherein the combinations of color component values in the first color space and the

combinations of color component values in a second color space composed of non-equipment-

dependent color components are in correspondence with each other (see grounds for rejection for

claim 2, input device profile); a second profile storing unit which stores second profiles wherein

the combinations of color component values in a third color space composed of the ink color

components of said printing device and the combinations of color component values in said

second color space are in correspondence with each other (see grounds for rejection for claim 2,

output device profile); a color conversion table generating unit which brings a color rendered

only by a specific color component value in said first color space and a color rendered only by a

specific color component value in said third color space into correspondence with each other in

the second color space, referring to said first profile and second profile, and generates a color

conversion table which defines the correspondence between the color component value in the

first color space which indicates this color and the color component value in the third color space

which indicates this color (see grounds for rejection for claim 2); a color conversion unit which

converts a color rendered only by a specific color component value in said acquired image data

into a color rendered only by a specific color component value in the third color space, referring

to said color conversion table (see grounds for rejection for claim 2); and a print operation

performing unit which performs print operation based on the image data which underwent the

color conversion (see grounds for rejection for claim 2).

Regarding **claim 11**, the combination of Yoda and Konishi as applied to claim 1 discloses

a medium with a print control program recorded thereon (Yoda Fig. 1 shows processor 23

reading code from memory 31), wherein the program causes a computer to carry out a function

of generating a color conversion table for converting a specific color in said input image data

into output image data wherein colors are rendered only by color components of the specific

color (see grounds for rejection for claim 1), referring to a previously stored profile (Fig. 9, S2

"set device profile"); and carrying out color conversion referring to the color conversion table

with respect to colors rendered only by color components of the specific color in said input

image data when print operation is performed (see grounds for rejection for claim 1).

Regarding **claim 12**, the combination of Yoda and Konishi as applied to claim 1 discloses

a medium with a print control program recorded thereon, wherein the program causes a computer

to carry out a function of storing on a predetermined storage medium a first profile wherein the

combinations of color component values in the first color space and the combinations of color

component values in a second color space composed of non-equipment-dependent color

components are in correspondence with each other and a second profile wherein the

combinations of color component values in a third color space composed of the ink color

components of said printing device and the combinations of color component values in said

second color space are in correspondence with each other; a color conversion table generating

function of bringing a color rendered only by a specific color component value in said first color

space and a color rendered only by a specific color component value in said third color space

into correspondence with each other in a second color space, referring to said first profile and

second profile, and generating a color conversion table which defines the correspondence

between the color component value in the first color space which indicates this color and the

color component value in the third color space which indicates this color; a color conversion

function of converting a color rendered only by a specific color component value in said

acquired image data into a color rendered only by a color component value in the third color

space, referring to the color conversion table; and a print operation performing function of

performing print operation based on the image data which underwent the color conversion (see

grounds for rejection for claim 2).

Allowable Subject Matter

7.   Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would

be allowable if rewritten in independent form including all of the limitations of the base claim

and any intervening claims.

Regarding **claim 5, and claim 6** which depends from claim 5, the prior art does not teach

a step for extracting a plurality of colors rendered only by a specific color component value from

both said first profile and second profile; a step for carrying out interpolation, referring to colors

calculated from either profile, to increase the number of colors rendered only by the specific

color component value; a step for, if the colors increased in number and a plurality of said colors

calculated from the other profile are within a predetermined color difference in the second color

space, taking them as the same color and combining them to thereby establish the

correspondence in said second color space; and a step for defining the correspondence between

color component values in the first color space and color component values in the third color

space over the whole range of value of the specific color component by interpolation referring to
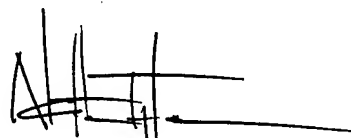
the sets brought into correspondence.

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Nathan K. Tyler whose telephone number is 571-270-1584. The

examiner can normally be reached on M-F 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KING Y. POON
SUPERVISORY PATENT EXAMINER

Nathan K Tyler
Examiner
Art Unit 2625